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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/771,547	01/30/2001	Toshiyuki Sato	D-1059	8819

7590 06/07/2004

KANESAKA AND TAKEUCHI
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EXAMINER

AGGARWAL, YOGESH K

ART UNIT PAPER NUMBER

2615

DATE MAILED: 06/07/2004

Handwritten number 3

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/771,547

Applicant(s)

SATO ET AL.

Examiner

Yogesh K Aggarwal

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 January 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

Drawings

1. Figure 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claim 5 is objected to because of the following informalities:

i. "... a signal process circuit formed on the active matrix board for connecting the gate lines and data lines to the gate driving circuit and the signal process circuit" should be read as "... a signal process circuit formed on the active matrix board for connecting the gate lines and data lines to the gate driving circuit and the signal driving circuit".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants' admitted prior art in view of Huang et al. (US Patent # 5,917,210).

[Claim1]

Applicant's admitted prior art teaches a radiation detector comprising an active matrix board (figure 3: 10) including gate lines (figure 3: 4) and data lines (figure 3: 5) arranged in a two-

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dimensional lattice form, a plurality of high-speed switching elements (figure 3: 3) provided at respective lattice points and connected to the gate lines and the data lines, each having a source electrode, pixel electrodes connected to the source electrodes of the high-speed switching elements, and charge storage capacitances (figure 3: 2), each being disposed between the pixel electrode and a ground electrode (Paragraph 3) and a converting layer (figure 3: 1) formed on the pixel electrodes to generate a pair of electron-hole by absorbing one of light and radiation (Paragraph 8). Applicant's admitted prior art teaches that active matrix board is formed of thin film transistors (TFT) formed of amorphous silicon (Paragraph 0005) but fails to teach wherein the said active matrix board is being formed of a poly-silicon process board. However Huang et al. teaches that it is well known and used in the art to have a TFT matrix formed of a poly-silicon process (col. 1 lines 16-23). Therefore taking the combined teachings of Applicant's admitted prior art in view of Huang it would have been obvious to one skilled in the art at the time of the invention to have been motivated to have a TFT matrix formed of a poly-silicon process. The benefit of doing so is that a novel TFT structure is provided characterized by no parasitic capacitance on either the drain or the source electrodes as taught in Huang (col. 3 lines 35-38).

[Claim 2]

Huang teaches that converting layer for generating the pair of electron-hole by absorbing one of light and radiation is a polycrystalline film of one of CdTe and CdZnTe (col. 8 lines 10-12).

[Claim 3]

Huang teaches that said high-speed switching elements are formed of polycrystalline silicon thin film transistors (col. 1 lines 16-23).

[Claim 4]

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Applicant's admitted prior art teaches wherein said active matrix board (figure 2: 10) further includes a base plate (figure 2: 11) having high heat resistance and insulating property, an insulating film (figure 2: 2b) disposed on the base plate and sandwiched by the gate lines (figure 2: 4) and data lines (figure 2: 5), an insulating protecting layer (figure 2: 12) disposed on the insulating film above the switching element, and a common electrode (figure 2: 1b) disposed on the converting layer .

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants' admitted prior art in view of Huang et al. (US Patent # 5,917,210) in further view of Yamazaki (US PG-PUB # 2002/0163035).

[Claim 5]

Applicant's admitted prior art teaches a radiation detector comprising gate driving circuit (figure 3: 6) to be connected to the gate lines (figure 3: 4), a signal driving circuit (figure 3: 7) to be connected to the data lines (figure 3: 5). Applicant's admitted prior art fails to teach a signal process circuit formed on the active matrix board for connecting the gate lines and data lines to the gate driving circuit and the signal driving circuit. However Yamazaki teaches a signal processing circuits (figure 8: 702 and 703) formed on the active matrix board substrate (figure 8: 100) and connected to the pixel section 701 through gate wiring 704 and source wiring 158 (Paragraph 135). Therefore taking the combined teachings of Applicant's admitted prior art in view of Huang it would have been obvious to one skilled in the art at the time of the invention to have been motivated to have a signal process circuit formed on the active matrix board for connecting the gate lines and data lines to the gate driving circuit and the signal driving circuit as taught in Yamazaki in order to improve the operation performance and the reliability of a

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semiconductor device by properly using the TFT structures on the same substrate as taught in Yamazaki (Paragraph 19).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

i. Izumi et al. (US Patent # 6,518,557).

ii. Tran et al. (US Patent # 5,534,445).

iii. Zhang et al. (US PG-PUB # 2002/0098635).

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yogesh K Aggarwal whose telephone number is (703) 305-0346. The examiner can normally be reached on M-F 9:00AM-5:30PM.

7. If attempts to reach the examiner by telephone are unsuccessful, the examiner's primary examiner, Ngoc Yen Vu can be reached on (703) 305-4946. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


YKA

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May 18, 2004



NGOC-YEN VU
PRIMARY EXAMINER